0021

From: Pam Grubaugh-Littig
To: Mary Ann Wright; Sheila Morrison
Date: 4/19/04 10:59AM
Subject: Fwd: East Fork of Box Canyon Monitoring Attempt 4/6/04

>>> "Davis, Mike" <MDavis@archcoal.com> 04/19/04 10:24AM >>>

Chris Hansen, Mark Bunnell, Erik Petersen and I made an attempt on 4/6/04 to monitor the East Fork of Box Canyon. We went up on ATV's since the road still had snow drifts across the road at the top of Link Canyon. At the time of the visit, while the south-facing canyon slopes were mostly free of snow, the north-facing slopes and shaded areas were still largely snow and ice covered. Much of the canyon bottom including the stream channel in many locations was covered with snow and ice (about 2 feet deep in the canyon bottom). The ground in shaded areas (including the area around the springs) was largely frozen and covered with snow. (See attached field trip report from Erik Petersen)(Pictures in 2nd email)

Mike

<<East Fork Box Canyon 6 Apr 04 field trip summary.doc>>

PETERSEN HYDROLOGIC

13 April 2004

Mr. Mike Davis
Canyon Fuel Company, LLC
Sufco Mine
397 South 800 West
Salina, Utah 84526

Mike,

On 6 April 2004 I visited the East Fork of Box Canyon together with personnel from Canyon Fuel Company, LLC. The purpose of the visit was to observe conditions generally and to identify changes that may have occurred since the site was last visited in January 2004.

At the time of the visit, winter-like conditions persisted in the canyon. While the south-facing canyon slopes were mostly free of snow, the north-facing slopes and shaded areas were still largely snow and ice covered. Much of the canyon bottom including the stream channel in many locations was covered with snow and ice (about 2 feet deep in the canyon bottom). The ground in shaded areas (including the area around the springs) was largely frozen and covered with snow. Consequently, discharge measurements were not performed.

Generally, conditions in the East Fork were similar to those observed when the site was last visited in January. There was still no visible flow at the surface from the frozen spring areas along the base of the Castlegate Sandstone (EFB-12, 13, and 14), although the soils near the springs appeared saturated. Discharge was observed at spring Pines 214. However, in some locations the discharge from the spring was apparently diverted temporarily into the shallow subsurface through tension cracks and/or open bedding planes. A discharge from Pines 214 near that typical for the spring was observed just above the confluence of the spring drainage with the main East Fork channel.

Although some reaches of the stream in the East Fork of Box Canyon were covered with snow and ice, it appeared that the stream flow was likely continuous from EFB-6 to EFB-11. At a location beginning approximately 50 yards below EFB-11, where the stream channel was completely obscured by snow and ice, no flow was observed in the frozen stream channel. Within a few tens of feet below this point, streamflow was again observed in the channel. Further downstream the discharge rate in the stream channel appeared to have increased to levels approaching those observed at EFB-11.

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It did not appear that there has been a large springtime snowmelt event in the East Fork of Box Canyon as of the date of our visit. After the winter snows melt and the ground thaws it will be possible to perform a more thorough survey of the area.

Please feel free to contact me should you have any questions in this regard.

Sincerely,

Erik C. Petersen, P.G.
Principal Hydrogeologist